PANKAJ AJIT
Learning Scientist | Data Scientist

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EDUCATION

School of Computer Science, Carnegie Mellon University, Pittsburgh, PA
Masters in Educational Technology and Applied Learning Science, Expected Graduation: August 14, 2018
Courses: Applied Machine Learning, Crowd Computing, Personalized Online Learning (Intelligent Tutoring Systems), Design of Educational Games, Tools for Online Learning, E-Learning Design Principles (Applied Learning science)

BITS Pilani, India
B.E.(Hons). Electrical and Electronics Engineering, 2008-2012

PROJECTS AT CMU

1. Capstone Project for Western Governors University (Ongoing)- Researched root cause for instructors deviating from prescribed instructional content. Develop framework for measuring effectiveness of content in improving student outcomes. Develop data driven products that targets root cause. (Currently developing a product for adding formative assessments to measure student progress, a learning science based assessment & instructional content creation guideline, and a sentiment analysis engine based on topics mined from internal and external data sources)

2. Research Project under Prof. Ken Koedinger (Ongoing): Researching the relationship between common core standards in MATH. There is a big data set of K-12 students and their performance in standardized tests. We are analyzing if performance in lower level standards are predictors of performance in higher level standards. Extracting relative importance of standards will enable us to allocate time appropriately for teaching it as well as creating a network of standards.

3. Designed an educational game to teach AP Physics topics on solving electrical circuits.
   - Applied the EDGE framework in the process of development

4. Developed an intelligent tutoring system using CTAT to teach Naive Bayes algorithm
   - Performed Cognitive Task Analysis on experts and novices to identify gaps in knowledge
   - Designed tutor with hints and feedback to target gaps

5. Built explanatory models to predict the probability of students getting first attempt correct - KDD challenge

6. Built online module using learning science principles to improve efficiency of workers on Amazon MTurk
   - Performed Cognitive Task Analysis via Think Alouds & structured interviews to understand expert workers
   - Analyzed learning curves of KCs
   - Performed A/B tests to measure efficacy of the learning module

WORK EXPERIENCE (4+ Years)

Target Corporation, Enterprise Data Science and BI, Senior Analyst, April 2014 - May 2017

1. Predicted which employees will leave Target to help HR take proactive measures to retain top talent
   - Researched explanatory factors for employee attrition
   - Validated factors through exploratory data analysis
   - Built an XGboost classifier in Python to predict employee attrition

2. Forecasted workload for the operations team to help them improve efficiency in planning
   - Generated Time series forecast using Holts Winters exponential smoothing in SAS
   - Built and hosted a 1 click forecasting tool for the operations team using SAS stored process

Mu Sigma Business Solutions, India, Business Analyst, Feb 2013 - Feb 2014

1. Modelled the sales of Nordstrom using linear regression in R
   - Engaged with clients to gather requirements
   - Formalized requirements into data driven questions
   - Collected data, performed exploratory analysis, generated insights
2. Measured the effectiveness of marketing campaigns run by eBay using A/B tests

CONSULTING

WAGR, India, Chief Data Science Consultant, August 2015 - April 2017

1. Developed real-time activity tracking algorithm for a wearable device for pets https://www.wagr.in/

- Used as features the readings obtained from the accelerometer and gyroscope in the device

RESEARCH AND PUBLICATION

1. Punnoose & Ajit. "Prediction of Employee Turnover in Organizations using Machine Learning Algorithms". Intl. Journal of Advanced Research in Artificial Intelligence(IJARAI), 5(9), 2016. http://dx.doi.org/10.14569/IJARAI.2016.050904

SKILLS

1. **Languages/Querying**
   - Python (Pandas, Tensorflow, scikit learn, nltk)
   - R
   - SAS
   - SQL/Teradata
2. **Tools**
   - CTAT (Cognitive Tutor Authoring Tool - Intelligent Tutoring System)
   - MS Office (Excel, Powerpoint, VBA)
   - Amazon AWS - EC2, Mechanical Turk
3. **Techniques**
   - Cognitive Task Analysis
   - Instructional Design- Backward Design and KLI framework
   - Learning Curve Analysis
   - Bayesian Knowledge Tracing
   - Map-Reduce
   - Machine Learning, Deep Learning
   - Time Series Forecasting